

CLAIMS

What is claimed is:

1. A handoff method for a mobile station in a wireless local area network, the method comprising:

receiving channel information on access points in an extended service set from a present access point of the mobile station; and

scanning channels by using the channel information to select a new access point of the mobile station.

2. The method of claim 1, wherein the channel information corresponding to each access point of the access points in the extended service set comprises an address of the access point, information on a channel used by the access point, and information on one or more access points adjacent to the access point.

3. The method of claim 1, further comprising outputting a handoff alert message to the present access point, wherein the receiving of the channel information comprises receiving a response message corresponding to the handoff alert message, the response message including the channel information.

4. The method of claim 3, wherein the outputting of the handoff alert message comprises outputting the handoff alert message in response to receiving a weak signal from the present access point.

5. A handoff method for a mobile station in a wireless local area network, the method comprising:

selecting a new access point;

outputting a reassociation message to the new access point; and

receiving a reassociation response message from the new access point in response to a temporary connection being established between the new access point and a previous access point of the mobile station.

6. The method of claim 5, wherein the selecting of the new access point comprises:
outputting a handoff alert message to the previous access point;
receiving a response message from the previous access point, the response message including channel information on access points in an extended service set;
scanning channels by using the channel information included in the response message;
and
selecting an access point with a strongest signal as the new access point.

7. A handoff method for a mobile station in a wireless local area network, the method comprising:

collecting channel information on access points in an extended service set in response to receiving a handoff alert message; and
outputting a response message corresponding to the handoff alert message, the response message including the channel information.

8. The method of claim 7, wherein the collecting of the channel information comprises:

broadcasting handoff notification messages to the access points in the extended service set; and
receiving acknowledgement messages including the channel information from the access points in the extended service set.

9. The method of claim 7, further comprising outputting an acknowledgement message including personal channel information in response to receiving a handoff notification message.

10. The method of claim 7, further comprising:

stopping services to the mobile station in response to a temporary connection being established with a new access point of the mobile station; and
outputting service data to the new access point through the temporary connection.

11. A handoff method for a mobile station in a wireless local area network, the method comprising:

establishing a temporary connection with a previous access point of the mobile station in response to receiving a reassociation message;

outputting a reassociation response message corresponding to the reassociation message in response to establishing the temporary connection;

establishing an optimum connection with the mobile station; and

terminating the temporary connection with the previous access point in response to establishing the optimum connection.

12. The method of claim 11, further comprising buffering data received from the previous access point through the temporary connection.

13. The method of claim 12, further comprising stopping the buffering of the data in response to the reassociation response message being sent to the mobile station.

14. The method of claim 11, wherein the establishing of the temporary connection comprises:

outputting a temporary connection request message to the previous access point; and receiving a temporary connection response message from the previous access point.

15. The method of claim 11, wherein the terminating of the temporary connection comprises:

outputting a temporary connection termination request message to the previous access point; and

receiving a temporary connection termination response message from the previous access point.

16. A handoff method for a mobile station in a wireless local area network, the method comprising:

selecting a new access point by scanning channels according to channel information received from a present access point; and

reassociating with the new access point in response to a temporary connection being established between the new access point and the present access point.

17. An access point performing a handoff with respect to a mobile station in a wireless local area network, the access point comprising:

a handoff alert message process unit which receives a handoff alert message and outputs a response message corresponding to the handoff alert message; and

a channel information collection unit which collects channel information on access points in an extended service set, wherein the channel information is included in the response message.

18. The access point of claim 17, further comprising a distributed service unit which stores the channel information.

19. The access point of claim 17, wherein the channel information collection unit comprises:

a handoff notification message send unit which outputs a handoff notification message to collect the channel information on the access points in the extended service set; and

a handoff notification acknowledgement message receiving unit which receives a handoff response message from the access points, the channel information on the access points being provided by way of the handoff response message.

20. The access point of claim 17, further comprising:

a reassociation message process unit which receives a reassociation message from the mobile station and outputs a response message corresponding to the reassociation message to the mobile station; and

a temporary connection/termination process unit which establishes a temporary connection with a previous access point of the mobile station using information included in the reassociation message and terminates the temporary connection in response to an optimum connection being established with the mobile station.

21. The access point of claim 20, wherein the reassociation message process unit outputs the response message to the mobile station in response to the temporary connection being established.

22. The access point of claim 20, further comprising an optimum connection search unit which establishes the optimum connection with the mobile station.

23. An access point performing a handoff with respect to a mobile station in a wireless local area network, the access point comprising:

- a reassociation message process unit which receives a reassociation message and outputs a response message corresponding to the reassociation message; and
- a temporary connection/termination process unit which establishes a temporary connection with a previous access point of the mobile station using information included in the reassociation message.

24. The access point of claim 23, further comprising an optimum connection search unit which establishes an optimum connection with the mobile station.

25. The access point of claim 23, wherein the temporary connection/termination process unit terminates the temporary connection in response to an optimum connection being established with the mobile station.

26. The access point of claim 23, wherein the access point buffers data received from the previous access point through the temporary connection.

27. An apparatus for use in an access point performing a handoff with respect to a mobile station in a wireless local area network, comprising:

- a channel information collection unit which collects channel information on access points in an extended service set in response to a handoff alert signal; and
- a temporary connection/termination process unit which establishes a temporary connection between predetermined access points in response to a reassociation signal.

28. A mobile station for use in a wireless local area network, comprising:

- a handoff alert message process unit which receives channel information on access points in an extended service set from a present access point; and
- a scanning unit which scans for a new access point by using the channel information.

29. The apparatus of claim 28, further comprising an access point selection unit which selects an access point with a strongest signal as the new access point according to a scanning result of the scanning unit.

30. The apparatus of claim 28, further comprising a distributed service unit which stores the channel information on the access points.

31. The apparatus of claim 28, wherein the handoff alert message process unit comprises:

a handoff alert message send unit which outputs a handoff alert message to the present access point; and

a handoff alert acknowledgment message receiving unit which receives a response message corresponding to the handoff alert message, the channel information being included in the response message.

32. The apparatus of claim 31, further comprising a signal strength detection unit which detects a signal strength of the access points, wherein the handoff alert message send unit outputs the handoff alert message in response to a predetermined signal strength of the present access point.

33. The apparatus of claim 28, further comprising a reassociation message process unit which establishes a reassociation with the new access point.

34. The apparatus of claim 33, further comprising a reassociation message process unit which outputs a reassociation message including information on the present access point, and receives a reassociation response message from the new access point in response to a temporary connection being established between the new access point and the present access point.

35. A mobile station comprising:

a handoff alert message process unit which receives channel information on access points in an extended service set from a present access point;

a scanning unit which scans for a new access point by using the channel information;

an access point selection unit which selects an access point with a strongest signal as the new access point according to a scanning result of the scanning unit;

a distributed service unit which stores the channel information on the access points;

a signal strength detection unit which detects a signal strength of the access points; and

a reassociation message process unit which establishes a reassociation with the new access point.

36. An apparatus for use in a mobile station in a wireless local area network, comprising:

a handoff alert message send unit which outputs a handoff alert message to a present access point of the mobile station to collect channel information on access points in an extended service set; and

a handoff alert acknowledgment message receiving unit which receives a response message corresponding to the handoff alert message, the channel information being included in the response message.

37. The apparatus of claim 36, further comprising a scanning unit which scans for a new access point using the channel information.

38. A computer readable medium encoded with operating instructions for implementing a handoff method for a mobile station in a wireless local area network, performed by a computer, the method comprising:

receiving channel information on access points in an extended service set from a present access point of the mobile station; and

scanning channels by using the channel information to select a new access point of the mobile station.

39. The computer readable medium claim of 38, further comprising outputting a handoff alert message to the present access point, wherein the receiving of the channel information comprises receiving a response message corresponding to the handoff alert message, the response message including the channel information.

40. A computer readable medium encoded with operating instructions for implementing a handoff method for a mobile station in a wireless local area network, performed by a computer, the method comprising:

selecting a new access point;

outputting a reassociation message to the new access point; and

receiving a reassociation response message from the new access point in response to a temporary connection being established between the new access point and a previous access point of the mobile station.

41. The computer readable medium claim of 40, wherein the selecting of the new access point comprises:

- outputting a handoff alert message to the previous access point;
- receiving a response message from the previous access point, the response message including channel information on access points in an extended service set;
- scanning channels by using the channel information included in the response message; and
- selecting an access point with a strongest signal as the new access point.

42. A computer readable medium encoded with operating instructions for implementing a handoff method for a mobile station in a wireless local area network, performed by a computer, the method comprising:

- collecting channel information on access points in an extended service set in response to receiving a handoff alert message; and
- outputting a response message corresponding to the handoff alert message, the response message including the channel information.

43. A computer readable medium encoded with operating instructions for implementing a handoff method for a mobile station in a wireless local area network, performed by a computer, the method comprising:

- establishing a temporary connection with a previous access point of the mobile station in response to receiving a reassociation message;
- outputting a reassociation response message corresponding to the reassociation message in response to establishing the temporary connection;
- establishing an optimum connection with the mobile station; and
- terminating the temporary connection with the previous access point in response to establishing the optimum connection.

44. A method in a computer system for implementing a handoff of a mobile station in a wireless local area network, the method comprising:

- controlling a channel information collection unit to collect channel information on access points in an extended service set in response to receiving a handoff alert message from the mobile station; and

controlling a handoff alert message process unit to output a response message corresponding to the handoff alert message, the channel information being included in the response message.

45. A method in a computer system for implementing a handoff of a mobile station in a wireless local area network, the method comprising:

controlling a temporary connection/termination process unit to establish a temporary connection with a previous access point of the mobile station in response to receiving a reassociation message from the mobile station; and

controlling a reassociation message process unit to output a response message corresponding to the reassociation message in response to establishing the temporary connection.

46. The method in a computer system of claim 45, further comprising:

controlling an optimum connection search unit to establish an optimum connection with the mobile station; and

controlling the temporary connection/termination process unit to terminate the temporary connection with the previous access point in response to establishing the optimum connection.

47. A method in a computer system for implementing a handoff of a mobile station in a wireless local area network, the method comprising:

controlling a channel information collection unit to collect channel information on access points in an extended service set in response to receiving a handoff alert message; and

controlling a temporary connection/termination process unit to establish a temporary connection with a previous access point of the mobile station in response to receiving a reassociation message.

48. A method in a computer system for implementing a handoff of a mobile station in a wireless local area network, the method comprising:

controlling a handoff alert message process unit to obtain channel information on access points in an extended service set from a present access point; and

controlling a scanning unit to scan for a new access point using the channel information.

49. The method in a computer system of claim 48, further comprising controlling an access point selection unit to select an access point with a strongest signal as the new access point according to a scanning result of the scanning unit.

50. The method in a computer system of claim 48, further comprising controlling a reassociation message process unit to establish a reassociation with the new access point.

51. A computer readable medium containing a data structure for storing channel information on access points in an extended service set, the channel information provided to a mobile station to select a new access point during a handoff in a wireless local area network, the data structure comprising:

address information of each of the access points in the extended service set;

information on a channel used by each of the access points in the extended service set;

and

information on one or more access points adjacent to each of the access points in the extended service set.

52. An access point performing a handoff with respect to a mobile station in a wireless local area network, the access point comprising:

means for collecting channel information on access points in an extended service set in response to a handoff alert signal; and

means for establishing a temporary connection with a previous access point of the mobile station in response to a reassociation signal.

53. A mobile station for use in a wireless local area network, comprising:

means for receiving channel information on access point in an extended service set from a present access point;

means for scanning a new access point by using the channel information; and

means for establishing a reassociation with the new access point.